

## ANALYTICAL REPORT

Job Number: 280-68637-2

Job Description: GSI - McConnell AFB (SWMU 207)

For:

GSI Environmental, Inc  
9600 Great Hills Trail, Ste 350E  
Austin, TX 78759

Attention: Anna Zabierek



Approved for release.  
Stephanie D Sanders  
Project Manager I  
5/21/2015 2:25 PM

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Designee for  
Elaine M Walker, Project Manager II  
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(303)736-0156  
elaine.walker@testamericainc.com  
05/21/2015

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

**TestAmerica Laboratories, Inc.**

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002  
Tel (303) 736-0100 Fax (303) 431-7171 [www.testamericainc.com](http://www.testamericainc.com)



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**CASE NARRATIVE**  
**Client: GSI Environmental, Inc**  
**Project: GSI - McConnell AFB (SWMU 207)**  
**Report Number: 280-68637-2**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

The sample was received on 05/02/2015; the sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.4 C.

**TOTAL PHOSPHORUS**

Sample 54400-MW44S-0515 (280-68637-1) was analyzed for total phosphorus in accordance with EPA Method 365.1. The samples were prepared and analyzed on 05/12/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## SAMPLE SUMMARY

Client: GSI Environmental, Inc

Job Number: 280-68637-2

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-68637-1	54400-MW44S-0515	Water	05/01/2015 0804	05/02/2015 0820

## EXECUTIVE SUMMARY - Detections

Client: GSI Environmental, Inc

Job Number: 280-68637-2

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-68637-1 Total Phosphorus as PO4	54400-MW44S-0515	0.022	J	0.15	mg/L	365.1

## METHOD SUMMARY

Client: GSI Environmental, Inc

Job Number: 280-68637-2

Description	Lab Location	Method	Preparation Method
<b>Matrix: Water</b>			
Phosphorus, Total	TAL DEN	EPA 365.1	
Phosphorus, Total	TAL DEN		MCAWW 365.2/365.3/365

### Lab References:

TAL DEN = TestAmerica Denver

### Method References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

## METHOD / ANALYST SUMMARY

Client: GSI Environmental, Inc

Job Number: 280-68637-2

Method	Analyst	Analyst ID
EPA 365.1	Schwemin, Andrew J	AJS



## Analytical Data

Client: GSI Environmental, Inc

Job Number: 280-68637-2

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### General Chemistry

**Client Sample ID:** 54400-MW44S-0515

Lab Sample ID: 280-68637-1

Client Matrix: Water

Date Sampled: 05/01/2015 0804

Date Received: 05/02/2015 0820

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Total Phosphorus as PO4	0.022	J	mg/L	0.015	0.15	1.0	365.1
Analysis Batch: 280-277169		Analysis Date: 05/12/2015 1951					
Prep Batch: 280-277109		Prep Date: 05/12/2015 1517					

## Quality Control Results

Client: GSI Environmental, Inc

Job Number: 280-68637-2

### Method Blank - Batch: 280-277109

**Method: 365.1**  
**Preparation: 365.2/365.3/365**

Lab Sample ID: MB 280-277109/4-A  
Client Matrix: Water  
Dilution: 1.0  
Analysis Date: 05/12/2015 1951  
Prep Date: 05/12/2015 1517  
Leach Date: N/A

Analysis Batch: 280-277169  
Prep Batch: 280-277109  
Leach Batch: N/A  
Units: mg/L

Instrument ID: WC\_Konelab  
Lab File ID: 051215TPHOS.xls  
Initial Weight/Volume: 50.0 mL  
Final Weight/Volume: 50.0 mL

Analyte	Result	Qual	MDL	RL
Total Phosphorus as PO4	0.015	U	0.015	0.15

### Lab Control Sample - Batch: 280-277109

**Method: 365.1**  
**Preparation: 365.2/365.3/365**

Lab Sample ID: LCS 280-277109/3-A  
Client Matrix: Water  
Dilution: 1.0  
Analysis Date: 05/12/2015 1951  
Prep Date: 05/12/2015 1517  
Leach Date: N/A

Analysis Batch: 280-277169  
Prep Batch: 280-277109  
Leach Batch: N/A  
Units: mg/L

Instrument ID: WC\_Konelab  
Lab File ID: 051215TPHOS.xls  
Initial Weight/Volume: 50.0 mL  
Final Weight/Volume: 50.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Phosphorus as PO4	1.53	1.64	107	90 - 110	

## DATA REPORTING QUALIFIERS

Client: GSI Environmental, Inc

Job Number: 280-68637-2

Lab Section	Qualifier	Description
General Chemistry	U	Indicates the analyte was analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Quality Control Results

Client: GSI Environmental, Inc

Job Number: 280-68637-2

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>General Chemistry</b>					
<b>Prep Batch: 280-277109</b>					
LCS 280-277109/3-A	Lab Control Sample	T	Water	365.2/365.3/365	
MB 280-277109/4-A	Method Blank	T	Water	365.2/365.3/365	
280-68637-1	54400-MW44S-0515	T	Water	365.2/365.3/365	
<b>Analysis Batch:280-277169</b>					
LCS 280-277109/3-A	Lab Control Sample	T	Water	365.1	280-277109
MB 280-277109/4-A	Method Blank	T	Water	365.1	280-277109
280-68637-1	54400-MW44S-0515	T	Water	365.1	280-277109

#### Report Basis

T = Total

## Quality Control Results

Client: GSI Environmental, Inc

Job Number: 280-68637-2

### Laboratory Chronicle

Lab ID: 280-68637-1

Client ID: 54400-MW44S-0515

Sample Date/Time: 05/01/2015 08:04 Received Date/Time: 05/02/2015 08:20

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:365.2/365.3/365	280-68637-D-1-A		280-277169	280-277109	05/12/2015 15:17	1	TAL DEN	AJS
A:365.1	280-68637-D-1-A		280-277169	280-277109	05/12/2015 19:51	1	TAL DEN	AJS

Lab ID: MB

Client ID: N/A

Sample Date/Time: N/A

Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:365.2/365.3/365	MB 280-277109/4-A		280-277169	280-277109	05/12/2015 15:17	1	TAL DEN	AJS
A:365.1	MB 280-277109/4-A		280-277169	280-277109	05/12/2015 19:51	1	TAL DEN	AJS

Lab ID: LCS

Client ID: N/A

Sample Date/Time: N/A

Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:365.2/365.3/365	LCS 280-277109/3-A		280-277169	280-277109	05/12/2015 15:17	1	TAL DEN	AJS
A:365.1	LCS 280-277109/3-A		280-277169	280-277109	05/12/2015 19:51	1	TAL DEN	AJS

#### Lab References:

TAL DEN = TestAmerica Denver

# REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
Phos Cal Int_00293	05/19/15	05/12/15	Di Water, Lot na	100 mL	phos cal std_00019	1 mL	Orthophosphate	10 mg/L
							P	10 mg/L
							Total Phosphorus as PO4	30.66 mg/L
.phos cal std_00019	08/01/16	Ricca, Lot 4408888			(Purchased Reagent)		Orthophosphate	1000 mg/L
							P	1000 mg/L
							Total Phosphorus as PO4	3066 mg/L
phos icv Int_00275	05/19/15	05/12/15	Di Water, Lot na	100 mL	Phos ICV std_00010	1 mL	Orthophosphate	10 mg/L
							P	10 mg/L
							Total Phosphorus as PO4	30.66 mg/L
.Phos ICV std_00010	07/18/16	Lab Chem, Lot D198-09			(Purchased Reagent)		Orthophosphate	1000 mg/L
							P	1000 mg/L
							Total Phosphorus as PO4	3066 mg/L



# RICCA CHEMICAL COMPANY

Arlington, TX 76012

Pocomoke City, MD 21851

Batesville, IN 47006

<http://www.riccachemical.com>

1-888-GO-RICCA

customerservice@riccachemical.com

## Certificate of Analysis

**Phosphorus AA Standard, 1 mL = 1 mg P (1,000 ppm P)**

**NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> in H<sub>2</sub>O**

Lot Number: 4408888

Product Number: AP1KW

Expiration Date: AUG 2016

Manufacture Date: 8/26/2014

This is a single element solution that was prepared volumetrically to contain the certified value reported. The uncertainty associated with the certified value is the sum of the estimated errors due to the purity of the raw material, the volumetric preparation of the solution, and transpiration of the solution through the container wall.

The final solution concentration is confirmed by AA, ICP, or ICP-MS, and is traceable to NIST Standard Reference Material 3139.

**This product number replaces 5857 as of 2007.**

### Contains:

Name	CAS#	Grade
Ammonium Dihydrogen Phosphate, NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	7722-76-1	High Purity
Water, Deionized, H <sub>2</sub> O	7732-18-5	ACS, ASTM D 1193 (Type I)

Test Name	Assay Method	Specification	Result
Appearance	Clarity, Color, Odor	Clear, colorless, odorless	Passed Test
Certified Concentration	Based on accurate volumetric preparation	1000 ± 5 ppm P	1000 ppm P

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Shelf Life (unopened container):

Part Number	Shelf Life
AP1KW-100	24 months
AP1KW-500	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

LaNelle Ohlhausen  
Quality Assurance

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

To determine manufacture site using lot number, visit <http://www.riccachemical.com/Documents/lot.pdf>.



Jackson's Pointe Commerce Park - Building 1000  
1010 Jackson's Pointe Court, Zellenople, PA 16063  
Ph: 412-826-5230 | Fax: 724-473-0647 | www.labchem.com

### CERTIFICATE OF ANALYSIS

Description: PHOSPHATE (AS PHOSPHORUS) STANDARD, 1000ppm (1mL = 1mg P)

Catalog Number: LC18590

Mfg Date: 07/18/2014

Lot Number: D198-09

Expiration Date: 07/18/2016

### ANALYTICAL SECTION

Test	Specification	Test Result
Appearance	clear, colorless solution	Pass Test
Concentration ppm P	1000ppm +/- 10ppm	1004ppm
Concentration mg P/mL	1.000 +/- 0.010 mg P/mL	1.004 mg P/mL
Traceable to NIST	Potassium Hydrogen Phthalate	84L

Submitted By: Greg Albright, Chemist Supervisor

An ISO9001:2008 certified company. Registration # 0306-01

09/19/2014 9:50:35 AM

Form #17.12 06/19/2012

Page 1 of 1



# Certification Summary

Client: GSI Environmental, Inc  
Project/Site: GSI - McConnell AFB (SWMU 207)

TestAmerica Job ID: 280-68637-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Denver	A2LA	DoD ELAP		2907.01
TestAmerica Denver	A2LA	ISO/IEC 17025		2907.01
TestAmerica Denver	Alaska (UST)	State Program	10	UST-30
TestAmerica Denver	Arizona	State Program	9	AZ0713
TestAmerica Denver	Arkansas DEQ	State Program	6	88-0687
TestAmerica Denver	California	State Program	9	2513
TestAmerica Denver	Connecticut	State Program	1	PH-0686
TestAmerica Denver	Florida	NELAP	4	E87667
TestAmerica Denver	Georgia	State Program	4	N/A
TestAmerica Denver	Illinois	NELAP	5	200017
TestAmerica Denver	Iowa	State Program	7	370
TestAmerica Denver	Kansas	NELAP	7	E-10166
TestAmerica Denver	Louisiana	NELAP	6	02096
TestAmerica Denver	Maine	State Program	1	CO0002
TestAmerica Denver	Minnesota	NELAP	5	8-999-405
TestAmerica Denver	Nevada	State Program	9	CO0026
TestAmerica Denver	New Jersey	NELAP	2	CO004
TestAmerica Denver	New York	NELAP	2	11964
TestAmerica Denver	North Carolina (WW/SW)	State Program	4	358
TestAmerica Denver	North Dakota	State Program	8	R-034
TestAmerica Denver	Oklahoma	State Program	6	8614
TestAmerica Denver	Oregon	NELAP	10	4025
TestAmerica Denver	Pennsylvania	NELAP	3	68-00664
TestAmerica Denver	South Carolina	State Program	4	72002001
TestAmerica Denver	Texas	NELAP	6	T104704183-13-8
TestAmerica Denver	USDA	Federal		P330-13-00202
TestAmerica Denver	Utah	NELAP	8	CO00026
TestAmerica Denver	Virginia	NELAP	3	460232
TestAmerica Denver	Washington	State Program	10	C583
TestAmerica Denver	West Virginia DEP	State Program	3	354
TestAmerica Denver	Wisconsin	State Program	5	999615430
TestAmerica Denver	Wyoming (UST)	A2LA	8	2907.01

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

# **GENERAL CHEMISTRY**

COVER PAGE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-68637-2

SDG No.: \_\_\_\_\_

Project: GSI - McConnell AFB (SWMU 207)

Client Sample ID  
54400-MW44S-0515

Lab Sample ID  
280-68637-1

Comments:

1B-IN  
INORGANIC ANALYSIS DATA SHEET  
GENERAL CHEMISTRY

Client Sample ID: 54400-MW44S-0515

Lab Sample ID: 280-68637-1

Lab Name: TestAmerica Denver

Job No.: 280-68637-2

SDG ID.:

Matrix: Water

Date Sampled: 05/01/2015 08:04

Reporting Basis: WET

Date Received: 05/02/2015 08:20

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Total Phosphorus as PO4	0.022	0.15	0.015	mg/L	J		1	365.1

2-IN  
CALIBRATION QUALITY CONTROL  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-68637-2  
SDG No.: \_\_\_\_\_  
Analyst: AJS Batch Start Date: 05/12/2015  
Reporting Units: mg/L Analytical Batch No.: 277169

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	19:51	Total Phosphorus as PO4	1.31	1.23	107	90-110		phos icv Int_00275
2	ICB	19:51	Total Phosphorus as PO4	0.015				U	
10	CCV	19:51	Total Phosphorus as PO4	1.64	1.53	107	90-110		Phos Cal Int_00293
11	CCB	19:51	Total Phosphorus as PO4	0.015				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

3-IN  
METHOD BLANK  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 277169 Date: 05/12/2015 19:51 Prep Batch: 277109 Date: 05/12/2015 15:17							
365.1	MB 280-277109/4-A	Total Phosphorus as PO4	0.015	U	mg/L	0.15	1

7A-IN  
LAB CONTROL SAMPLE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 277169 Date: 05/12/2015 19:51 Prep Batch: 277109 Date: 05/12/2015 15:17											
LCS Source: Phos Cal Int_00293											
365.1	LCS 280-277109/3- A	Total Phosphorus as PO4	1.64		mg/L	1.53	107	90-110			

Calculations are performed before rounding to avoid round-off errors in calculated results.

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-68637-2

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: WC\_Konelab

Method: 365.1

MDL Date: 11/29/2010 00:00

Prep Method: 365.2/365.3/365

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Total Phosphorus as PO4		0.15	0.01533



9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-68637-2  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: WC\_Konelab  
Method: 365.1 XMDL Date: 11/29/2010 00:00

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Phosphorus as PO4		0.15	0.01533

12-IN  
PREPARATION LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Prep Method: 365.2/365.3/365

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
LCS 280-277109/3-A	05/12/2015 15:17	277109		50.0	50.0
MB 280-277109/4-A	05/12/2015 15:17	277109		50.0	50.0
280-68637-1	05/12/2015 15:17	277109		50.0	50.0

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Instrument ID: WC\_Konelab Method: 365.1

Start Date: 05/12/2015 19:51 End Date: 05/12/2015 20:47

Lab Sample ID	D / F	T y p e	Time	Analytes															
				T - P O 4															
ICV 280-277109/1-A	1		19:51	X															
ICB 280-277109/2-A	1		19:51	X															
LCS 280-277109/3-A	1	T	19:51	X															
MB 280-277109/4-A	1	T	19:51	X															
ZZZZZZ			19:51																
ZZZZZZ			19:51																
ZZZZZZ			19:51																
ZZZZZZ			19:51																
280-68637-1	1	T	19:51	X															
CCV 280-277109/11-A	1		19:51	X															
CCB 280-277109/12-A	1		19:51	X															
ICV 280-277109/1-A			19:55																
ICB 280-277109/2-A			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
ZZZZZZ			19:55																
CCV 280-277109/11-A			19:55																
CCB 280-277109/12-A			19:55																
ZZZZZZ			19:58																
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ZZZZZZ			19:58																
CCV 280-277109/23-A			19:58																
CCB 280-277109/24-A			19:58																
ZZZZZZ			20:24																
ZZZZZZ			20:24																
ZZZZZZ			20:24																
ZZZZZZ			20:24																
ZZZZZZ			20:24																
CCV 280-277109/23-A			20:24																
CCB 280-277109/24-A			20:24																

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Instrument ID: WC\_Konelab Method: 365.1

Start Date: 05/12/2015 19:51 End Date: 05/12/2015 20:47

Lab Sample ID	D / F	T y p e	Time	Analytes																	
				T - P O 4																	
ZZZZZZ			20:47																		
CCV 280-277109/23-A			20:47																		
CCB 280-277109/24-A			20:47																		

Prep Types

T = Total/NA

## Data Review Checklist – Calibration Methods

<b>Method(s):</b> 365.1	<b>Instrument:</b> KONE LAB	<b>Run Date:</b> 5/12/15	<b>Analyst Initials:</b> AYS	<b>SOP #:</b> WC0017
	<b>Prep Batch(s):</b> 277109		<b>Analytical Batch:</b> 277109	

	Yes	No	N/A	2nd
<b>A. Calibration/Instrument Run QC</b>				
Minimum of five standards in ICAL or as specified in SOP?	✓			
Correlation coefficient $\geq 0.995$ ?	✓			
Second-source ICV analyzed, and recovery within acceptance limits?	✓			✓
ICB analyzed immediately after the ICV & results < the RL	✓			✓
CCV analyzed after every ten samples & recovery within acceptance limits?	✓			✓
CCB analyzed after every CCV & results < RL?	✓			✓
Absolute value of the x intercept is $< \pm \frac{1}{2}$ the RL?	✓			✓
Elution order verified? (anions)			✓	✓
Were manual integrations performed correctly and properly documented? (anions)			✓	✓
<b>B. Sample Results</b>				
All samples greater than highest calibration standard diluted and reanalyzed?	✓			✓
Do associated RLs/MDLs reflect dilutions or limited sample volume?	✓			✓
All reported results bracketed by in control CCV results?	✓			✓
Sample analyses done within holding time? <b>If no, create HTV NCM. NCM #</b>	✓			✓
Are any results over calibration range? If reported, are results E flagged?		✓		✓
Are J values the result of over dilution?		✓		✓
Client requirements reviewed and met?	✓			✓
Were data manually transcribed from instrument printouts or benchsheets into TALS verified 100% including dilution factors, significant figures and correct units? (If Applicable)			✓	✓
Do the prep and analysis dates in TALS reflect the actual dates?	✓			
Were peak assignments verified? (anions)			✓	✓
Were manual integrations performed correctly and properly documented? (anions)			✓	✓
<b>C. Preparation/Matrix QC</b>				
Method blank $< \frac{1}{2}$ RL or all reported samples $> 10\times$ blank have NCM? - (COD, Phenol MB <RL)	✓			✓
Method blank $< \frac{1}{2}$ RL or NCM provided? - (COD, Phenol MB <RL)	✓			✓
LCS/LCSD run for batch and within QC limits?	✓			✓
MS/MSD run at required frequency? Verify that MS/MSD failures are matrix issues and not analytical issues such as not spiking or not applying the appropriate dilution.	✓			✓
DUP run at required frequency?			✓	✓

Menu or Tab	Check	1 <sup>st</sup>	2 <sup>nd</sup>
Analyst Desktop	Create or open batch		
View Batch Info	Confirm all fields are populated	✓	✓
	Edit Analyst ID as is appropriate	✓	✓
Run log	Verify the correct samples and QC are run at the correct frequency (i.e., 10 samples per CCV)	✓	✓
Sample List	Confirm all Graphics have been uploaded (IC only)	NA	NA
	In edit mode, If prompted to process samples, select "Yes"	✓	✓
	Confirm samples are identified (Blue P Icon)	✓	✓
	Confirm correct analysis date and time are listed	✓	✓
	Confirm samples have the correct dilution factors. <b>TOC – Check for manual dilutions not entered into instrument run log, Auto dilutions (Aut. Dil.) and Injections volume (Inj. Vol.)</b>	✓	✓
	Confirm samples have the correct method chain assigned	✓	✓
	Confirm that solid samples have the % moisture listed	NA	NA
Worksheet	Populate all appropriate fields in the worksheet. Initial Amount, Final Amount, pH, etc.	✓	✓
Reagents	Confirm reagents are correct and properly associated with QC samples. Confirm that reagent amounts are correct. If reagents are new, verify that the correct COA has been attached to the source standard	✓	✓
Results	Check for special instructions (Login, Method and Sample comments) - red notebook icon	✓	✓
	Check for any QC failures	✓	✓
	Set status for samples based on QC and sample results info (i.e., set to primary analysis with passing QC or reject samples without passing QC or samples that are over-range).	✓	✓
	Address any results that are reported without passing QC with an NCM	✓	✓
QC Links	Confirm QC links are correct	✓	✓
Hist. Data Check	Check historical data. Print charts for outliers. Take corrective action as is appropriate	✓	✓
Sample List	Re-calculate data and set to appropriate review status (1 <sup>st</sup> or 2 <sup>nd</sup> level review)	✓	✓
	Scan and attach raw data & save batch	✓	✓

Analyst: <i>Anty S. [Signature]</i>	Date: 5/13/15	2nd Level Reviewer: <i>Chittym [Signature]</i>	Date: 5/14/15
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Laboratory  
Analyzer User

5/12/2015 20:04

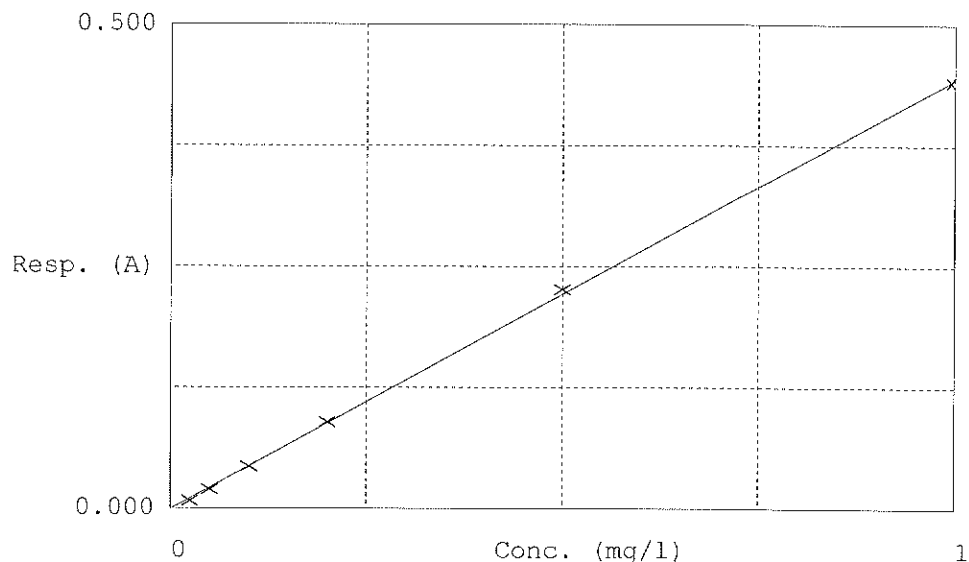
Test TPHOS

Accepted 5/6/2015 21:14

Factor 2.25  
Bias -0.001

Coeff. of det. 0.999701

Errors



Calibrator	Response	Calc. con.	Conc.	Errors
1 TPH 0.025	0.008	0.01963	0.02500	
2 TPH 0.05	0.020	0.04667	0.05000	
3 TPH 0.10	0.043	0.10004	0.10000	
4 TPH 0.2	0.089	0.20342	0.20000	
5 TPH 0.5	0.226	0.51125	0.50000	
6 TPH 1.0	0.441	0.99399	1.00000	

Calibrator	Information
TPH 0.025	0.025 MG/L TPHOS
TPH 0.05	0.05 MG/L TPHOS
TPH 0.10	0.10 MG/L TPHOS
TPH 0.2	0.2 MG/L TPHOS
TPH 0.5	0.5 MG/L TPHOS
TPH 1.0	1.0 MG/L TPHOS

AS5

5/12/15

Ascorbic Acid\_00169  
TPHOS calibr - 00036  
WC 5MLBB

Laboratory  
Analyzer User

5/12/2015 21:14

Test: TPPOS

Sample Id	Result	Dil. 1 +	Response	Errors
icv 280-277109/1	0.4208	0.0	0.186	
icb 280-277109/2	0.0014	0.0	-0.000	
lcs 280-277109/3	0.5392	0.0	0.239	
mb 280-277109/4-	0.0024	0.0	0.000	
280-68601-g-2-a	0.0076	0.0	0.002	
280-68601-g-3-a	0.0053	0.0	0.001	
MS 280-68601-g-3-b	0.5389	0.0	0.239	
MS 280-68601-g-3-c	0.4980	0.0	0.220	
280-68637-d-1-a	0.0088	0.0	0.003	
580-49572-b-1-a	1.1642	0.0	0.517 R	Test limit high
ccv 280-277109/1	0.5365	0.0	0.237	
ccb 280-277109/1	0.0012	0.0	-0.000	
280-68812-e-1-a	0.2394	0.0	0.105	
280-68996-a-4-a	0.0018	0.0	-0.000	
280-68608-d-1-a	1.4830	0.0	0.658 R	Test limit high
280-68608-e-2-a	2.1545	0.0	0.957 R	Test limit high
280-68604-d-1-a	1.4119	0.0	0.627 R	Test limit high
280-68604-d-2-a	1.2017	0.0	0.533 R	Test limit high
280-68605-e-1-a	0.0023	0.0	0.000	
280-68605-e-2-a	-0.0036	0.0	-0.003	
MS 280-68605-e-2-b	0.2860	0.0	0.126	
MS 280-68605-e-2-c	0.5160	0.0	0.228	
ccv 280-277109/2	0.5156	0.0	0.228	
ccb 280-277109/2	0.0017	0.0	-0.000	
49572-1 2X	1.3069	0.0	0.289	
68608-1 2X	2.9040	0.0	0.644 R	Test limit high
68608-2 5X	3.7193	0.0	0.330	
68604-1 2X	1.8537	0.0	0.411	
68604-2 2X	1.5832	0.0	0.351	
CCV 3	0.5205	0.0	0.230	
CCB 3	0.0030	0.0	0.000	
68608-1 5X	1.8115	0.0	0.160	
CCV 4	0.5211	0.0	0.231	
CCB 4	0.0016	0.0	-0.000	

N 34  
Mean 0.7576  
SD 0.91823  
CV% 121.20

AYS  
5/12/15

Laboratory  
Analyzer User

5/12/2015 20:03

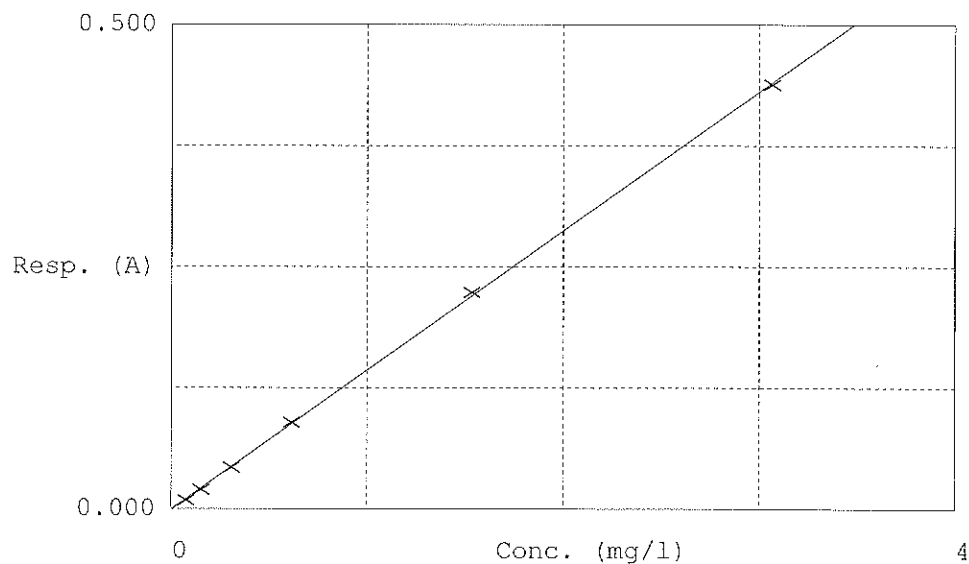
Test T-PO4

Accepted 5/6/2015 21:14

Factor 6.956  
Bias -0.001

Coeff. of det. 0.999814

Errors



	Calibrator	Response	Calc. con.	Conc.	Errors
1	TPO4 .0766	0.009	0.06711	0.07665	
2	TPO4 0.153	0.020	0.14276	0.15330	
3	TPO4 0.307	0.043	0.30268	0.30660	
4	TPO4 0.613	0.089	0.62542	0.61320	
5	TPO4 1.533	0.224	1.55913	1.53300	
6	TPO4 3.066	0.438	3.05165	3.06600	

Calibrator Information

TPO4 .0766  
TPO4 0.153  
TPO4 0.307  
TPO4 0.613  
TPO4 1.533  
TPO4 3.066



Laboratory  
Analyzer User

5/12/2015 20:03

Test: T-PO4

Sample Id	Result	Dil. 1 +	Response	Errors
icv 280-277109/1	1.3137	0.0	0.188	Blank resp. low
icb 280-277109/2	0.0098	0.0	0.001	Blank resp. low
lcs 280-277109/3	1.6416	0.0	0.235	
mb 280-277109/4	0.0057	0.0	0.000	
280-68601-g-2-a	0.0215	0.0	0.003	Blank resp. low
280-68601-g-3-a	0.0119	0.0	0.001	
280-68601-g-3-b	1.6420	0.0	0.236	Blank resp. low
280-68601-g-3-c	1.5468	0.0	0.222	Blank resp. low
280-68637-d-1-a	0.0225	0.0	0.003	
ccv 280-277109/1	1.6450	0.0	0.236	
ccb 280-277109/1	0.0045	0.0	0.000	

N	11
Mean	0.7150
SD	0.81199
CV%	113.57

ATK  
5/12/15

## GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Batch Number: 277109 Batch Start Date: 05/12/15 15:17 Batch Analyst: Schwemin, Andrew JBatch Method: 365.2/365.3/365 Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Phos Cal Int 00293	phos icv Int 00275	AnalysisComment	
ICV 280-277109/1		365.2/365.3/ 365, 365.1		50.0 mL	50.0 mL		2 mL	pH 2	
ICB 280-277109/2		365.2/365.3/ 365, 365.1		50.0 mL	50.0 mL			pH 2	
LCS 280-277109/3		365.2/365.3/ 365, 365.1		50.0 mL	50.0 mL	2.5 mL		pH 2	
MB 280-277109/4		365.2/365.3/ 365, 365.1		50.0 mL	50.0 mL			pH 2	
280-68637-D-1	54400-MW44S-0515	365.2/365.3/ 365, 365.1	T	50.0 mL	50.0 mL			pH 2	
CCV 280-277109/11		365.2/365.3/ 365, 365.1		50.0 mL	50.0 mL	2.5 mL		pH 2	
CCB 280-277109/12		365.2/365.3/ 365, 365.1		50.0 mL	50.0 mL			pH 2	

Batch Notes	
Block Digestor Name	A
First End time	1830
Ammonium Persulfate Lot #	Ammonium SO4_00018
Oven, Bath or Block Temperature 1	140 Centigrade
Pipette ID	wc5MLBB
First Start time	1630
Sulfuric Acid Reagent ID Number	11N h2s04_00037
ID number of the thermometer	140
Digestion Tube/Cup Lot #	1408268-7A-4332-CA
Uncorrected Temperature	140 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

365.1

Page 1 of 1

## GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-68637-2

SDG No.: \_\_\_\_\_

Batch Number: 277169 Batch Start Date: 05/12/15 19:51 Batch Analyst: Schwemin, Andrew JBatch Method: 365.1 Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CalcMsg			
ICV 280-277109/1-A		365.1		2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
ICB 280-277109/2-A		365.1		2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
LCS 280-277109/3-A		365.1		2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
MB 280-277109/4-A		365.1		2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
280-68637-D-1-A	54400-MW44S-0515	365.1	T	2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
CCV 280-277109/11-A		365.1		2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
CCB 280-277109/12-A		365.1		2.0 mL	2.0 mL	Not Calculated. No Phosphorus result			
LCS 280-277109/3-A		365.1		2.0 mL	2.0 mL	OK			
MB 280-277109/4-A		365.1		2.0 mL	2.0 mL	OK			
280-68637-D-1-A	54400-MW44S-0515	365.1	T	2.0 mL	2.0 mL	OK			

Batch Notes	
Ammonium Molybdate Reagent ID Number	tphos color1_00036
Ascorbic Acid Reagent ID Number	Ascorbic Acid_00169
Potassium Antimonyl Tartrate Reagent ID	tphos color1_00036
Pipette ID	wc5MLBB wc1000AA
Perform Calculation (0=No, 1=Yes)	1
Sulfuric Acid Reagent ID Number	tphos color1_00036

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

365.1

Page 1 of 1

# Shipping and Receiving Documents

## Chain of Custody Record

<b>Client Information</b> Client Contact: Anna Zabierek Mr. Steve Gragert Company: CSE Environmental Address: 12120 Shamrock Plaza, Suite 300, 9606 Great Hills Trail, Suite 300 E City: Omaha, NE 68154 State, Zip: NE, 68154 Phone: 512 346 4474 Email: steve.gragert@urs.com Project Name: McConnell AFB LTM & IMPM Site: 51403-7B11-0515 Project #: 28003908 SSOW#: 51403-7B11-0515		Sampler: A. Zabierek Lab PM: Walker, Elaine M Phone: 512 346 4474 E-Mail: elaine.walker@testamerica.com		Carrier Tracking No(s): Job #: 3969-211 CQC No: 280-36098-14680.5 Page: 1				
Due Date Requested: TAT Requested (days): 510 TAT		Analysis Requested: PSK-175 Diss Grav Method 7196A - Hexavalent Chlorn 365.1 Hex Chlorn Phosphate 6010B - 0.5 Fe - Field Filtr 2540C - cad - TDS 6010C - 0.005 - Tot Fe CaK Mg etc 2320B - Alk - Carbonate & Bicarbonate 9056 - 28D - Nitrate + Nitrite 9056 - 48 hr Sulfate + Chloride 8760B - 0.005 - VC Perform MS/MSD (Yes or No)						
Sample Identification 54403-7B11-0515 54403-7B11-0515		Sample Date 5.1.15 5.1.15	Sample Time 0804	Sample Type (C=Comp, G=grab) G	Matrix (W=water, S=solid, O=waste/soil, BT=tissue, AS=air) W	Field Filtered Sample (Yes or No) X	Total Number of Containers X	Special Instructions/Note: 280-68637 Chain of Custody
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify) Level III		Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Method of Shipment:						
Relinquished by:		Date: 05-01-15 / 1200		Received by:		Date/Time: 5/2/15 8:20		Company: TA
Relinquished by:		Date/Time:		Received by:		Date/Time:		Company:
Relinquished by:		Date/Time:		Received by:		Date/Time:		Company:
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 1.2 I 125 to 2.2 May 5/2/15				

## Login Sample Receipt Checklist

Client: GSI Environmental, Inc

Job Number: 280-68637-2

Login Number: 68637

List Source: TestAmerica Denver

List Number: 1

Creator: Dedio, Michael T

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Trip blank listed on COC was not received.
Samples are received within Holding Time.	False	Sample received after Hexavalent Chromium analysis had expired.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	